

# Re: Tool-Kit for Detroit

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**ABSTRACT:** Detroit is a city defined by making. The refrain “You can get anything made in Detroit” is often quoted today even after the decline and relocation of the automotive industry. Given the condition of Detroit, the state of American manufacturing, and the fact that the city and its fabrication networks are illegible to newcomers and industry outsiders, the *Re:Tool-Kit for Detroit* research project questions the veracity of this claim. The project asks what can you *really* get made in Detroit *today*. Who are the makers operating in the city today? Where are the fabrication shops? How does fabrication shape the city today? And how is the culture of making in Detroit evolving in response to the changes in manufacturing, the rise of digital fabrication, and an influx of artist and craft based making?

By mapping the fabrication landscape of the city, and packaging the research in a way that is accessible to designers, and students of art, architecture and design who may not be fabricators, the research seeks to create new opportunities for the under utilized fabrication capacity that already exists in Detroit and to encourage new collaborations between university and city, design and fabrication. Research for this study was gathered through 47 interviews conducted with a range of fabricators. Interviews were recorded and analyzed. Fabrication shops and fabricators were documented photographically and mapped.

The research findings have been exhibited at the University of Michigan and will be available in the form of a website and a printed (and printable) “toolkit” both of which contains a map, directory, journalistic case studies, and a series of historical vignettes documenting previous examples of industrial production collaborating with art and design in the city of Detroit. The research project has also entered into a partnership with a non-profit “designed to support Detroit’s growing creative economy” called the Detroit Creative Corridor Center.

**KEYWORDS:** Detroit, fabrication, making, interviews, toolkit

## INTRODUCTION

Even before the invention of automobile, Detroit was a city that made many things. It was a city defined by making and what was made there.<sup>1</sup> The refrain, “You can get anything made in Detroit” is still heard frequently even today in the face of a relocated automotive industry and rapid population decline, indicating that making is still the identity of Detroit even if what is being made is no longer the automobile, and what will be made in the future is yet to be determined. The *Re:Tool-Kit for Detroit* research project sought to answer the question, “What can you *really* get made in Detroit *today*?” By creating a map of what can actually be made in Detroit today, who is doing the making, where things are being made, the project sought to expose how the culture of making in Detroit is evolving at this moment after the restructuring of automotive industry but also in response to the proliferation of digital fabrication and the rise of artist and craft based entrepreneurialism. Data collection efforts were aimed at creating a snap shot of a shifting moment in time – capturing information about how old-school fabrication shops are changing as well as information about what kinds of new shops are forming. To that end, research for this study was gathered through interviews with 47 Detroit area fabricators ranging from long-standing tool and die shops that do not use digital tools, to hi-tech service based fabricators working for military and medical clients, craftsmen fabricators, start-up artisanal fabricators, and collective maker spaces where tools and resources are shared among multiple members.

The *Re:Tool-Kit for Detroit* research project, which is ongoing at this time, deals with the visibility of research in its core objectives, its method of research collection, and the format of the research output. From the outset of the *Re:Tool-Kit for Detroit* research project, mapping the fabrication capacity of the city was seen as a way of rendering both the city of Detroit and its fabrication network visible to a new audience. The desire to make the knowledge of one community visible and accessible to another literally drove decisions about the design and content of the research products. The form of the products produced by the research incorporated a graphic design agenda that sought to present the data in a way that was insightful, useful, communicative, democratic and compelling to an audience that was not necessarily already familiar with

Detroit or fabrication. The decision to employ interviews as the research method served to further connect the research with a larger community as the outreach and organization required to contact, select and conduct the interviews required. This paper will begin by describing in detail the final products produced by the *Re:Tool-Kit for Detroit* and then discuss the research methods, findings, modes of distribution and future potential.



**Figure 1:** Street views of operational Detroit fabrication shops, Fall 2012. Source: (*Re:Tool-Kit for Detroit*, 2012)

## 1.0 TOOLS

The *Re:Tool-Kit* is a collection of information gathered, organized and designed to facilitate collaborations with Detroit area fabricators. The tool-kit targets an audience that is either partially or wholly unfamiliar with Detroit and the state of fabrication and provides readers with practical tools and information that would be needed to engage the fabrication community. It also aspires to inspire readers to imagine new ways that Detroit area fabrication techniques and modes of production can be incorporated into design concepts and projects. By providing insights into the character of the Detroit fabrication community, in conjunction with the tools needed to connect with the human capacity and fabrication know-how that already exists in Detroit, the tool-kit aims to facilitate collaborations between a new generation of designers and existing fabrication sectors of Detroit for mutual benefit. To that end, the tool-kit takes the form of a guidebook, a website, and an exhibit. Each product targets a different audience and is anticipated to have a different circulation and life span. This section will describe the intentions, design, character, and considerations of each product as well as the subsections of the guidebook.

### 1.1 Guidebook

Although the bulk of the guidebook takes the form of a directory, it is not designed to function as a traditional directory such as Angie's List or the yellow pages. It does not exhaustively cover what can be made in Detroit nor does it aspire to be a how-to guide for learning about local fabrication technologies.<sup>2</sup> Rather, it is envisioned as a guidebook or window into the world of Detroit fabrication. It provides an overview level understanding of Detroit's fabrication network, the character of the fabricators, where they work, how to find them and how their work has changed over time. Directory style information is contextualized with graphic symbols, maps, photographs, and stories from the present and past. The guidebook is organized into nine sections: a series of introductory essays, a symbol guide, a map of shops, the directory of shops, case

studies, historical vignettes, a timeline, photographs of interviewed shops, and a reference bibliography covering fabrication technology, creative economy, graphic design, and Detroit fabrication history.

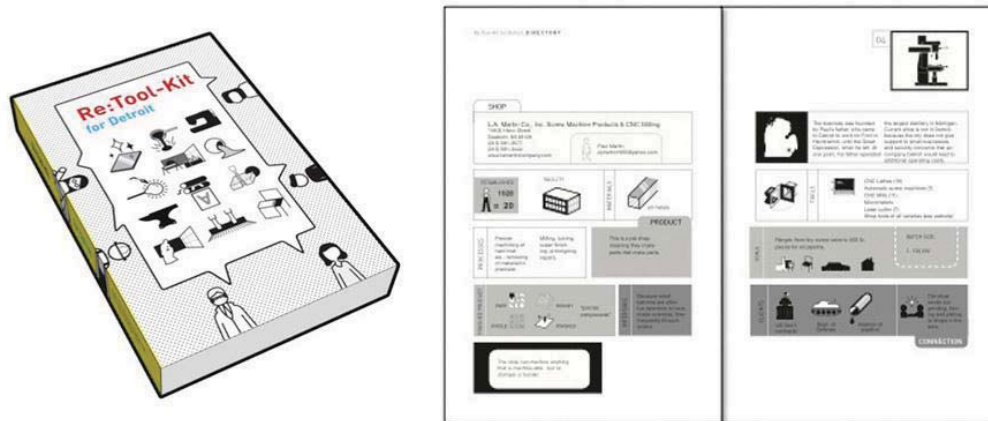
## 1.2 Graphics

Communication graphics were a critical component of all components of the Re:Tool-Kit. The guidebook, website, and exhibit employ a series of unique symbols developed specifically for this project. The symbols create a unified graphic identity for the various components of the project, simplify complex content for a non-expert audience, and provide an efficient means of keying the various sections of the guidebook to one another. Symbols were developed for each fabrication shop type, materials, client types, and a number of other categories aimed at describing the scale, level of finish, and capabilities of each shop included in the directory. The symbols are intended to be an entertaining, non-verbal method of organizing and visualizing a range of information and can be added to and adapted over time. The guidebook states,

The symbols act as a friendly guide through the material, in much the same manner that familiar pictograms help us navigate foreign places. The symbols in the *Re:Tool-Kit* offer distillations of complicated arrangements – easy to recognize and easy to recall, they are the breadcrumbs that mark a trail through the book and through the city. Though inherently reductive in form, in spirit they aspire to reach out and pull viewers into an evolving story already in progress.<sup>3</sup>

## 1.3 Directory

The directory allots two pages to each of the 47 shops interviewed (Figure 2). The information presented was selected to do two things. If a reader is simply curious about fabrication or Detroit in general, they can easily see the similarities and differences between various fabrication shops. If a reader is looking for a fabricator that can provide a specific fabrication process, the directory is intended to provide the basic level of information that would be needed to make contact with a fabricator and discuss a possible project. It is our aspiration that once a reader understands the capabilities of various fabrication shops, they might incorporate that mode of production into a design project.



**Figure 2:** Guidebook cover and typical two-page directory spread allotted to each shop. Source: (*Re:Tool-Kit for Detroit*, 2012)

In addition to contact information, the founding date of each shop and number of employees, there is an icon indicating whether or not the shop occupies its own building or shares space with others. Materials used in the shop are indicated with icons where as processes and tools, which become complicated or too numerous and varied to illustrate graphically are indicated with words. Typical and unusual final products are listed. The scale, typical batch size and level of finish of the final product is indicated. Client types are listed so it becomes clear if a shop will work with individuals, architects, or strictly with other industries and businesses. The symbols are also used to key shop locations to the city map which, when fully populated, will show industrial corridors, and how new and old shops are inhabiting different city zones.

## 1.4 Case Studies

In addition to including anecdotes and quotes from fabricators on directory sheets, the guidebook included several journalistic case studies that go into greater detail about the history and production of a spectrum of shops. They rely heavily on quotations so that personalities and opinions are as true to character as possible. The case studies cover: 1) a 23 year old artist/entrepreneur who started a sewing production non-

profit that employs homeless women to make sleeping bags that convert into coats, 2) an experimental prototype firm doing high-end, low-volume production for military and aeronautical clients, 3) a plastic injection molding company located on an empty street directly across from Chrysler, 4) an furniture maker/sculptor who makes high end custom sculptures and furniture out of metal, wood, and glass, 5) a recently established blacksmith shop which moved to Detroit specifically to educate others about their trade and participate in the making culture, 6) an architectural metalwork shop specializing in pre-welding technologies and education of traditional craft based techniques through a European guild model, 7) an investment casting company started in 1961 that has shrunk from one hundred and twenty to twelve employees in the last twenty years, and 8) metal tube bending shop which was established in 1905 and was the oldest shop covered in our research established to convert ship engines from steam to gas prior to the rise of the automobile.

### 1.5 Historical vignettes

Ten vignettes dealing with historical partnerships between Detroit designers and manufacturers are included in the guidebook as a means of providing a context for re-tooling and unlikely collaborations. These vignettes show that Detroit's industrial sector has historically been adaptable, diverse and open to outside influences. The vignettes include examples of the art world and automotive industry working together as well of examples of artists using industrial production processes, factories using the same tools to produce craft and industrial products, and examples of retooling during war times. These vignettes are intended to inform readers about how technologies have historically evolved in an effort to spark ideas about how current tools and technologies might be adapted and developed through new collaborations between design and fabrication.

### 1.6 Website

A website was developed as a compliment to the guidebook. The online medium has the potential to reach a larger audience. It is more adaptable than print and could accommodate a more extensive directory or be developed to track the changing fabrication landscape. Information from the tool-kit is reformatted and edited for the digital format, but largely the same in content (Figure 4). It is built upon a familiar Google map, but is intended to not simply direct viewers to specific locations or supplant the physical world, but rather, like the book, to complement and deepen one's understanding of a non-visible network.

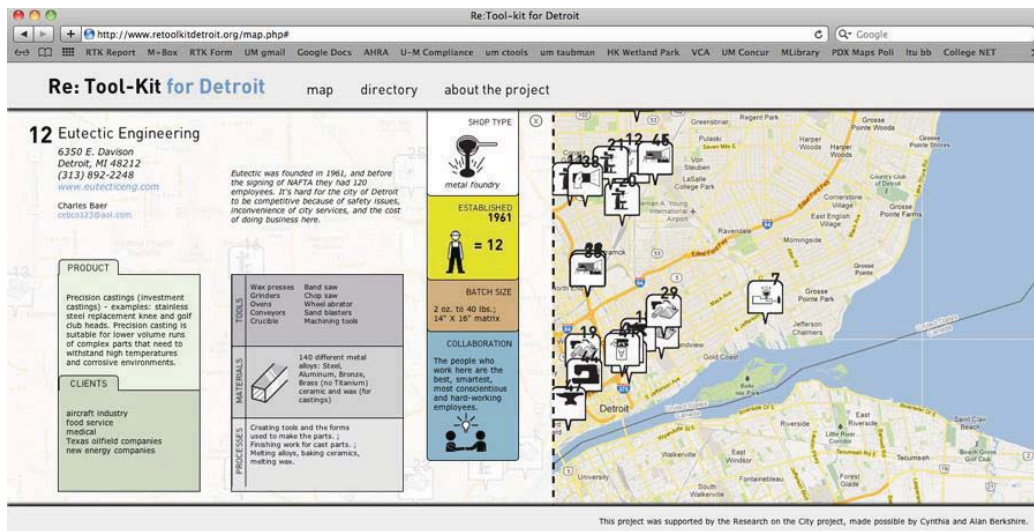


Figure 4: www.retoolkitdetroit.org. Source: (Re:Tool-Kit for Detroit, 2012)

### 1.7 Exhibit

An exhibit of the *Re:Tool-Kit* was held at the University of Michigan in November of 2012. The exhibit was designed to make the research, website and guidebook available to the public and the university community. Interviewed fabricators were also invited. The exhibit included large scale versions of the symbols developed for the project, a map of all interviewed fabricators, objects from fabricators showing what can be made in Detroit today, and a large number of photographs collected during the interview process. Photographs taken from the street of the exterior facades of the 47 shops were grouped together and contrasted with interior photography showing people, tools, space, details, and activity of the interiors (Figure 5).

## 2.0 RESEARCH METHODS

This section of the paper will describe the research methods, selection of interviewees, and questions asked.

### 2.1 Database

Research for the project started with the creation of a database of four hundred shops collected via internet directories, driving around the city looking for fabrication shops and asking for recommendations from local fabricators and people who make things and get things made. This database was added to over the course of the project as interviewees continued to recommend other shops that they considered “first class,” successful or remarkable for any number of reasons. The final 47 interviews were selected based on a combination of who was willing to be interviewed and an effort to reach a spectrum of different shop types, fabrication processes, tool lists, business structures, locations, and products.



**Figure 5:** Research on the City Exhibit at The University of Michigan, November 2012. Source: (Taubman College of Architecture and Urban Planning, 2012)

### 2.2 City limits

The majority of the shops interviewed were located in Detroit, but several were located in surrounding areas. For the purpose of creating a defined data pool, the original intention of the project was to look exclusively at the city of Detroit, but in order to achieve a spectrum of processes and shop types, ten of the 47 interviews were with shops located outside of the city limits. Many of these shops had originally been located in Detroit. One moved during the course of the project. For many reasons, the fabrication networks of Detroit do not stop at the city limits. Industrial hubs tend to form near their source of materials or business. Many fabrication shops that formerly provided parts to automotive manufacturers are located in close proximity to their primary source of business and customer base. Other shops are located along transportation corridors, or in areas where city services best benefit business needs. Although the city of Detroit is 139 square miles, Metro Detroit (also referred to as the Detroit Tri-County Area) encompasses 1,337.16 square miles. Business and residential areas have long been interconnected and interdependent with the surrounding areas. It could easily be argued that a true map of Detroit fabrication needs to include shops both inside the city limits as well as shops located in the Detroit Metro Area, and to compare the types and success of the two groups, but given the size of the city, that was outside the scope of research at this time.

### 2.3 Interview

Interviewing fabricators was determined to be the best method for collecting information about fabrication shops because it produced qualitative and inclusive information. What and how things were made was wrapped up in personal stories about the city of Detroit, the particular business, and attitudes about craft and expertise. The interviews provided insight into the spirit and character of the people that make things in Detroit and the difference between one machine shop and another might have more to do with the personality and history of the business owner than with the list of tools, location, clientele and typical batch size. In order to capture the character of the shops and in keeping with the guidebook aesthetic, bits of anecdotal information and quotations collected during the interviews are interspersed with factual information to provide insight into the character and particularities of each shop.

Interviews consisted of thirty-five questions and took approximately one hour. Questions were developed and tested through a series of initial interviews over a period of three months. In the final version, the questions were grouped into eight categories: making/products, history, tools and skills, business, networks and communication, Detroit, and the *Re:Tool-Kit*. Questions asked included 1) what is made 2) what tools

and skills are required, 3) how does the business work - number of employees, batch size, scale and finish of products, and customer base, 4) when did the shop start and how it has changed over time, 5) does the shop “collaborate,” 6) is the shop capable of making something different than they make today, 7) how does one find the right fabricator for a job in Detroit, and 8) how does being in Detroit affect the work.

## 2.4 Photography

Every shop that was interviewed was also photographed in the following categories: exterior street façade, signage, entry, interior space, people, tools, materials, and objects made. The city of Detroit and its many ruins have been extensively photographed in recent years. What has been less documented is the interior of the city.<sup>4</sup> The exterior photographs collected as part of the research are not distinguished from much of the recent photography of Detroit. What is significant is the contrast between exterior urban appearance and interior life. Photographs of the people, tools and interiors of studios and workshops taken during the interview process show another side of Detroit busy at work but not visible from the city streets (Figure 1, 3).



**Figure 3:** Examples of interior photography of interviewed shops. Source: (*Re:Tool-Kit for Detroit*, 2012)

## 3.0 OBJECTIVES ASSUMPTIONS AND FINDINGS

This section describes in greater detail the objectives, assumptions and findings of the research. It also outlines questions and areas of future work raised by the research done to date.

### 3.1 Fabrication capacity

From the outset, the *Re:Tool-Kit* suspected that despite the state of American manufacturing and Detroit's present day economy, there is still a wealth of knowledge, know-how and fabrication capacity in the city. Knowing that many small-scale fabrication shops that were once part of an extensive network of automotive feeder industries have been hard hit in recent years, the research project sought to access and quantify the knowledge, skills, craftsmanship and tools. If the existing fabrication capacity and making network could be identified, mapped and rendered visible to a larger audience, a new generation of designer/makers, and a developing movement toward craft-based entrepreneurialism, making could become not only the identity of Detroit, but also its future.

### 3.2 Illegible city

The appearance and distribution of fabrication shops in Detroit follow similar patterns that exist in many similarities with other American cities. Fabrication businesses concentrate along transportation corridors in light industrial areas populated with durable workshop buildings, often windowless. The invisibility of making and fabrication may not be unique to Detroit, but it could be argued that the once booming fabrication industry and extensive presence of large and small scale manufacturing within the city limits, has added to the illegibility of present day Detroit—especially given the fact that many of these businesses have gone out of business, relocated outside of the city, or have greatly reduced hours of operations and fewer employees. The research also brought to light other reasons that fabrications shops seem opaque and hard to find. In the heyday of the automotive industry, many small-scale fabricators produced specialized products in large batches for recurring clients and did not need to advertise. We learned that most business was done through well-established business-to-business relationships and marketing was not needed. Our interviews revealed

that many fabrication shops still rely primarily on word of mouth for finding new clients and many that are used to large contracts and dealing with familiar entities are not interested in walk-in and low volume business. In addition, due to safety concerns regarding the theft of tools and materials, many shops are completely barricaded by security fencing. It is possible to see where buildings are missing or in a state of disrepair, but its much harder to see any clue as to what is going on inside these buildings, not to mention what is being made inside.

### 3.3 Definition of fabrication

The definition of fabrication used for this project was purposefully inclusive. The term fabrication was often used interchangeably with making and was determined to include old-school shops that do not use digital tools, to hi-tech service based fabricators working for military and medical clients, craftsmen fabricators, start-up artisanal fabricators, members of collective maker spaces where fabrication tools and resources are shared among multiple members and artists who are skilled at techniques that might have traditionally be classified as fabrication—such as metal work, machining and assemblies.

The decision to interpret fabrication very broadly had two purposes. The first was simply in an effort to understand what is being made in Detroit. The second has to do with the difficulty of setting parameters given the computerization and democratization of tools and processes. The proliferation of digital-based fabrication tools has led to the disintegration of the traditional division between design and making. Artists, architects and designers can now produce design and fabrication drawings simultaneously in a single digital file. Sophisticated modeling tools allow multiple differing skill sets such as those of designers, consultants, and fabricators to all work together simultaneously on a project from the very beginning, rendering illegible the moment when the design ended and construction began. This collapse of design and fabrication/construction is changing both design and fabrication. It increases the pressure on designers to understand the potentials and limits of fabrication before the design process even begins. What might better unify the data pool than the term fabrication is a qualification about the scale of making. All of the shops interviewed can be classified as small-scale as opposed to large-scale manufacturing. This scale of making is more likely to be of interest to the design sector. Both old and new shops included in the interview process, were dealing with low volumes of production whether by intention or lack of business.

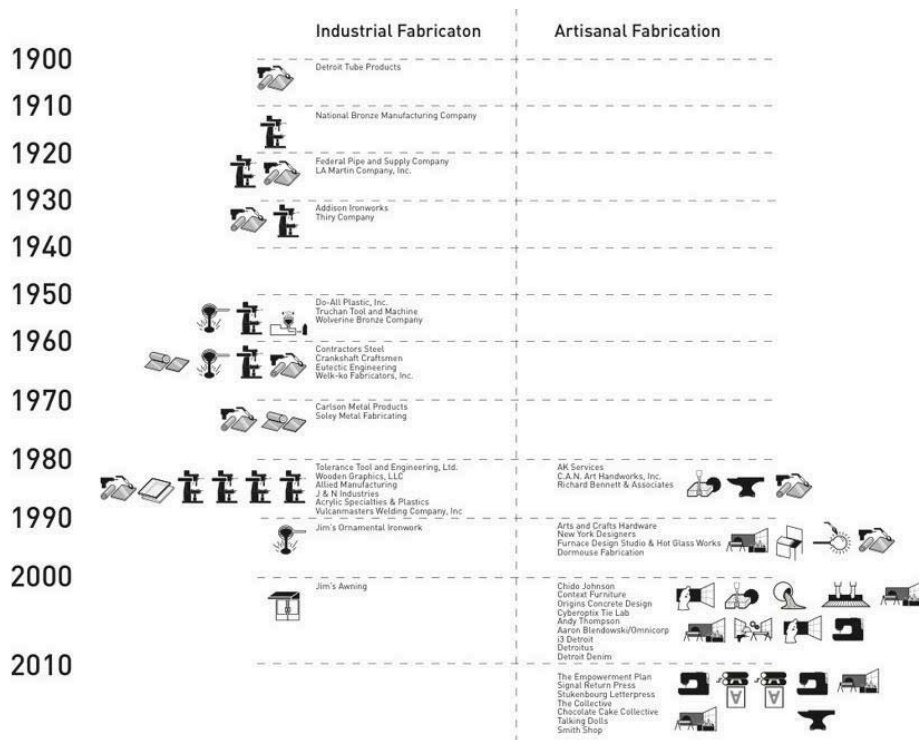


Figure 6: Timeline of interviewed shops. Source: (*Re:Tool-Kit for Detroit*, 2012)

### 3.4 State of transition

The data collected shows that the culture and business of making in Detroit are indeed changing. Older shops are closing while a new breed is forming and moving in. This moment includes both old school and brand new shops, but the number of old-school shops is diminishing every day. A timeline of the 47 shops interviewed organized by fabrication type shows a clear shift from industrial fabrication to artisanal fabrication. All of the shops in our data pool that started before 1980 focused on industrial production. After 1980, there is a clear shift toward more designing and a designer/fabricator hybrid (Figure 6).

While many older shops were passed down through families from generation to generation, new shops tend to be started graduates of art and design schools – many of whom are originally from Michigan. Both new and old shops often started in a basement or a garage. There was a wide array of tools and skills. Some of the shops we interviewed use state of the art tools and specialize in prototypes and low volume production or high-tech work for aerospace and defense. Other shops had not purchased a new machine in forty-three years—but told us these machines are increasing in value as reliable back-ups to computer operated machines. Many shops were working at less than 20% capacity. Several said they never wanted to work for the Big Three ever again.

## 4.0 DISTRIBUTION

The distribution strategy for the *Re:Tool-Kit* is based upon a genuine desire to make connections between designers and Detroit area fabricators. To that end, a website was created which will link to a version of the guidebook that can be downloaded or printed on demand. The study initially focused on connecting students of art, architecture and design in the South Eastern Michigan region with Detroit's fabrication capacity because there is a growing educational interest in fabrication technologies, but many students seek work outside of Detroit. Information about the guidebook and research will initially be advertised via 300 printed copies, paid for by research grant funding, and distributed to all 47 interviewed fabricators as well as professors at the University of Michigan in art and architecture. The intent is that faculty will refer the books to students and that fabricators will refer the book to possible clients and other fabricators.

### 4.1 Partnership

In order to increase circulation of the research as well as continue the process of mapping Detroit's present day fabrication capacity and network, the *Re:Tool-Kit for Detroit* team has entered into a partnership with a non-profit "designed to support Detroit's growing creative economy" called the Detroit Creative Corridor Center (DC3). DC3 will add an essay to the guidebook, publish and circulate additional books in South East Michigan. They will also provide assistance for maintaining and possibly growing the website to include a greater number of directory entries. This partnership will increase the visibility of the research locally as well as insure the initial objective of the project of providing a platform for new collaborations and business.

## CONCLUSION

The *Re:Tool-Kit for Detroit* aspires to connect a new generation of people to the existing fabrication network in an effort to contribute to the revival of post-industrial cities in a way that acknowledges with their historical character but also open the way to new opportunities and modes of production. The research captured a snapshot of what can be made in Detroit today and packaged the research for maximum distribution. The research team currently seeking to partner with economic researchers to situate the qualitative data collected within an economic context. In addition, although the *Re:Tool-Kit for Detroit* was developed in response to a specific place and a specific set of conditions, the project is seen as a proprietary set of research tools and forms of output that can be abstracted into a framework and applied to other cities.

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## ENDNOTES

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